

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No
PCT/GB2005/001088

International filing date (day/month/year)
22.03.2005

Priority date (day/month/year)
24.03.2004

International Patent Classification (IPC) or both national classification and IPC
A62D3/00, C04B18/00

Applicant
BRITISH NUCLEAR FUELS PLC

1. This opinion contains indications relating to the following items:

- ☒ Box No I Basis of the opinion
- ☒ Box No II Priority
- ☐ Box No III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No IV Lack of unity of invention
- ☒ Box No V Reasoned statement under Rule 43bis 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No VI Certain documents cited
- ☐ Box No VII Certain defects in the international application
- ☒ Box No VIII Certain observations on the international application

2 FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66 1bis(b) that written opinions of this International Searching Authority will not be so considered

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3 For further details, see notes to Form PCT/ISA/220

Name and mailing address of the ISA:



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WRITTEN OPINION OF THE
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International application No.
PCT/GB2005/001088

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
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**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or
Industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-33
Inventive step (IS)	Yes: Claims	
	No: Claims	1-33
Industrial applicability (IA)	Yes: Claims	1-33
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the International application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2005/001088

Re Item V

1. Reference is made to the following document

- D1: DATABASE WPI Section Ch, Week 197631 Derwent Publications Ltd., London, GB; Class D15, AN 1976-58618X XP002355393 & JP 51 069483 A (NICHIREKI CH IND KK) 16 June 1976 (1976-06-16)
- D2: DATABASE WPI Section Ch, Week 200409 Derwent Publications Ltd., London, GB; Class A97, AN 2003-010779 XP002355838 & KR 391 393 B (KOREA ATOMIC ENERGY RES INST) 12 July 2003 (2003-07-12)
- D3: WO 02/43814 A (ADA TECHNOLOGIES, INC; BRODERICK, THOMAS, E; ROTH, RACHEL, L; CARLSON,) 6 June 2002 (2002-06-06)
- D4: DE 42 17 987 A1 (BATTELLE-INSTITUT E.V., 6000 FRANKFURT, DE) 2 December 1993 (1993-12-02)
- D5: US-A-6 133 498 (SINGH ET AL) 17 October 2000 (2000-10-17)

1. Novelty:

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-33 is not new in the sense of Article 33(2) PCT.

Document D1 discloses:

Stabilisation of toxic sludge material containing amongst others, mercury and radiation rays material by treatment with sulfur or sulfur compounds to immobilise the toxic material and with cement and aggregates to solidify it.

Accordingly D1 anticipates the subject-matter of claims 1-2 and 24-33 of the application.

Document D2 discloses:

Stabilisation of waste mercury by amalgamation with metal powder of copper, tin or zinc and solidification of the immobilised toxic material by cement.

Accordingly D2 anticipates the subject matter of claims 1,4-32.

Furthermore the addition of an inorganic acid during amalgamation is generally known. (see documents D3 or D4).

2. Inventive step.

Document D1, which is considered to represent the most relevant state of the art, discloses a stabilisation method of mercury by a sulfur compound before the immobilisation by cement, from which the subject-matter of claim 2 differs in that the stabilisation of mercury is done by a phosphate ceramic.

It is not clear that any technical effect is associated with the distinguishing feature.

The problem to be solved by the present invention may therefore be regarded as to provide a different stabilisation method for the mercury before the cementation.

The solution proposed in claim 2 of the present application (stabilisation of mercury by phosphate ceramic) cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

It is known to the applicant (see page 2, line 18 of application) that such a process has been used in the prior art. That is also confirmed by document D5 (see col. 5 , lines 24-27 and claim 27) where a phosphate ceramic is used to stabilise waste containing metals as Hg.

The subject matter of claim 2, thus, refers to known features and therefore cannot contribute an inventive step.

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Re item VIII

Clarity:

The term immobilisation in claim 1 is very vague and leave the reader in doubt as to the meaning of the technical features to which they refer.

Hence the definition of the subject-matter of claim 1 is unclear (Art. 6 PCT).